

**BTEC  
FIRST**

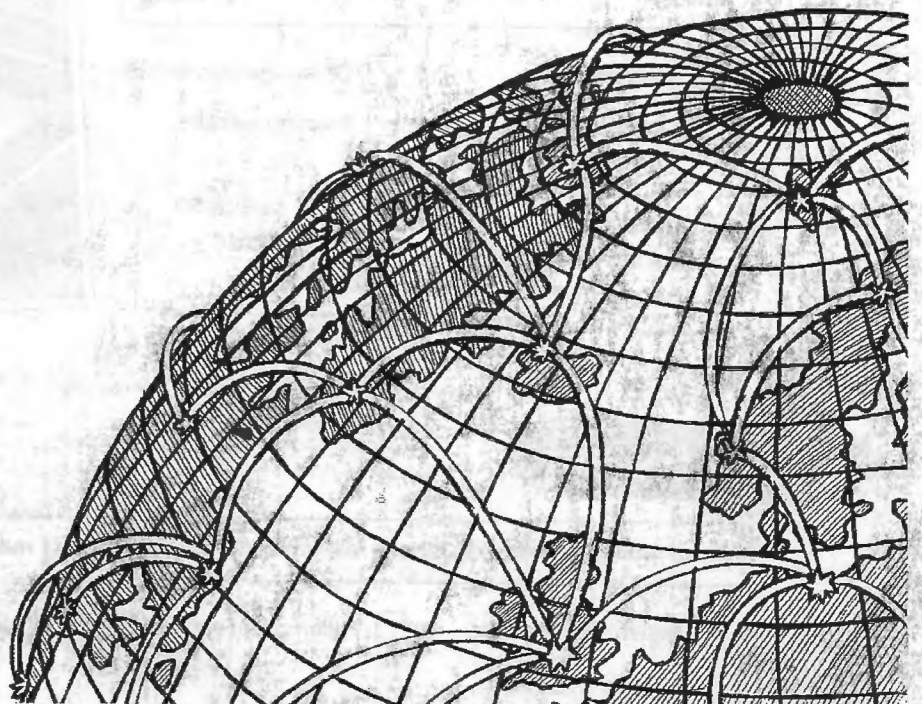
endorsed for  
**BTEC**

**REVISE BTEC**

# **Information and Creative Technology**

Unit  
Unit

# **REVISION GUIDE**



ALWAYS BE

# Online services 1

Online services are facilities that users can access over the internet and which allow data exchange and interaction. Here are four types of online services:

## 1 Communication

This service is about moving data between users.

Examples include:

- email
- instant messaging
- newsgroups
- social networking (e.g. Facebook)
- online conferencing
- blogs.

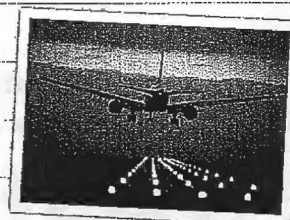


## 2 Real-time information

This service is used to get up-to-date information.

Examples include:

- train timetables
- news services
- traffic reports
- flight status updates
- weather.

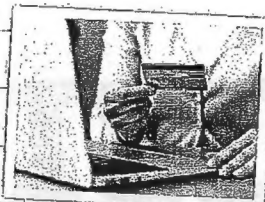


## 3 Commerce

This service involves business – buying, selling and money services such as banking.

Examples include:

- internet banking
- online auction websites (e.g. eBay)
- retail sales (e.g. HMV, Tesco.com)
- publishing (e.g. Kindle on Amazon).

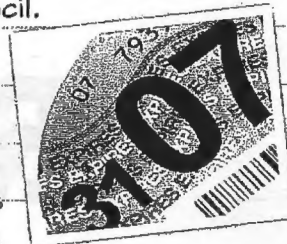


## 4 Government

This service involves public services, such as government bodies, like the DVLA and local council.

Examples include:

- online tax returns
- e-voting
- applications for services or grants
- revenue collection
- renewing car tax.

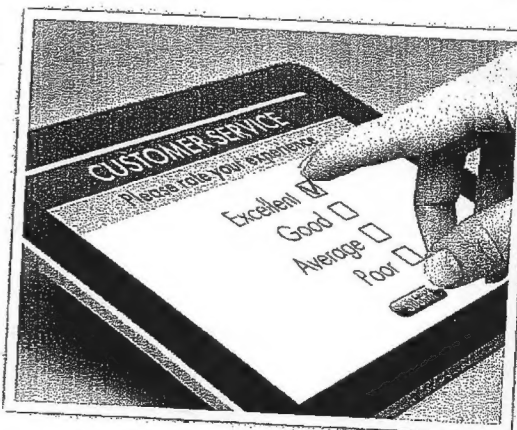


### Worked example

Which **one** of the following is an online commerce service? (1 mark)

- A ☐ Train timetable      B ☒ Online auction website  
C ☐ Online tax return      D ☐ E-voting website

Commerce means 'business' and business is about making money – so commerce services involve money in some way.



### Now try this

Which **one** of the following is not a real-time online service? (1 mark)

- A ☐ Instant messaging      B ☐ Pollen count website      C ☐ Live bus timetable      D ☐ News app

Remember to read questions carefully!



# Online services 2

Here are five more online services:

## 1 Education

This service involves learning and training.

Examples include:

- online learning for learners (e.g. BBC Bitesize)
- online training.

## 2 Entertainment

This service involves using the internet for leisure and fun.

Examples include:

- online gaming, including multiplayer on consoles and portable devices



## 3 Virtual learning environment (VLE) (e.g. Moodle, Blackboard)

This service is a virtual classroom that allows teachers and learners to communicate with each other.

- radio players and music websites
- catch-up TV
- on-demand films.

## 4 Business

This service involves businesses using websites to make their business more efficient or to save money.

Examples include:

- video conferencing (e.g. Skype)

## 5 Download services

This service involves files which can be downloaded and saved onto the user's computer. These are LEGAL services.

Examples include downloads for:

- music and film
- software
- upgrades.



- collaborative working
- business networks.

### Worked example

Which **one** of the following is an online business service?

(1 mark)

- A ☐ Retail website  
B ☐ VLE  
C ☐ Online tax return  
D ☒ Collaborative working

The online service for business is **not** about businesses using websites for selling. This would be considered Commerce.

### Now try this

Give **two** reasons why a user may use download services to acquire software instead of more traditional methods.

(2 marks)

Had a look ☐Nearly there ☐Nailed it! ☐**UNIT 1**  
Learning aim A

# Online advertising

Online advertising is designed to capture and hold the attention of a user to promote a product or service. There are several methods which can be used.

**Google**

Christmas cards

Q

Search

About 179,000,000 results (0.22 seconds)

Everything

Images

Maps

Videos

News

Shopping

More

Search near...

Enter location

Set

The web

Ads for Christmas cards

Why these ads?

Ads for Christmas ... - Why these ads?

**Christmas Card Sale - Save 50% on Christmas card printing** Norton

www.vistaprint.co.uk/ - \*\*\*\*\* 529 seller reviews

Choose size, theme and photo option

High quality paper - New templates available - Business &amp; consumer

**Quality & Reliable Print | kingfisher-press.com** Norton

www.kingfisher-press.com/about-us

Kingfisher Press Quality print at competitive prices

**Christmas Cards | BeatBloodCancerShop.com** Norton

www.beatbloodcancershop.com/Christmas

Support us with Leukaemia &amp; Lymphoma Research christmas cards.

**Personalised Christmas Cards | Hallmark Cards UK** Norton

www.hallmark.co.uk/ Cards Home

Personalised Christmas Cards for everyone; Including Traditional Cards, Photo upload Christmas Cards &amp; more! Make it personal with Hallmark UK.

**Christmas Card Designs** Norton

www.zazzle.co.uk/

Choose From 99,000+ Free Templates! Shop Christmas Card Designs.

**Personalised Cards** Norton

www.snapfish.co.uk/Photo\_Cards

Cards For Every Occasion. Demos and Ideas Online. Hurry, 25% Off Now!

**Send E-cards** Norton

www.farmfrica.org.uk/ecards

Send charity E-cards &amp; help change lives in Africa!

**Christmas Cards** Norton

www.matalan.co.uk/

matalan.co.uk is rated \*\*\*\*\*

This shows a search engine results page with sponsored (paid for) links.

Google and the Google logo are registered trademarks of Google Inc., used with permission.

## Pay-per-click advertising

A web page will host an advert for another organisation. If a user clicks on the advert, they are directed to the advertiser's website. The host will receive payment for each user who clicks on the advert. This is known as an affiliate model.

Banner/Pop-up adverts can be effective in catching users' attention but can also be annoying.



## Worked example

Why might a website owner and an advertiser want to be involved with an affiliate model of online advertising? Give **one** reason for each.

(2 marks)

There are two marks – you can give two viewpoints: the host and the advertiser.

## Now try this

A website owner can host an advert and earn money every time a user clicks on it. An advertiser can put their advert on popular websites and potentially get more custom as more users will see their advert.

Explain how banner and pop-up adverts aim to capture and retain the interest of web page users.

(2 marks)

# Online documents – file compression

File compression makes files SMALLER so that they take up less space in computer memory.

Compression is also known as 'zipping' and is done using an algorithm. One file can be compressed or many files can be compressed into one.

File extensions for these include .zip, .rar, .7z and .dmg.

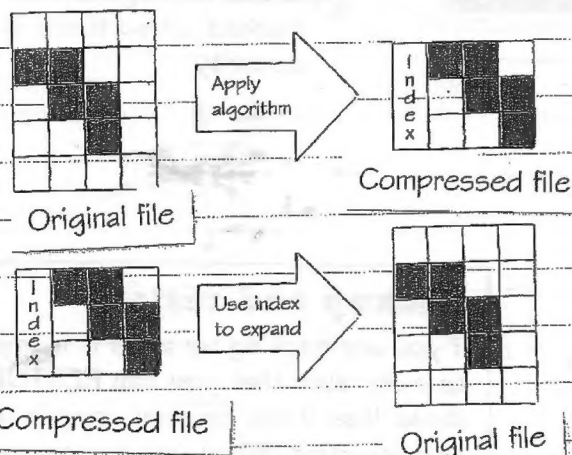
Each file extension is created using a different compression algorithm. Therefore, the user(s) compressing and expanding the file needs to use the same program.

## Advantages of file compression

- ✓ Saving memory space on computers e.g. web server
- ✓ Files will upload and download more quickly
- ✓ Files will better fit restrictions, such as the attachment limit on email

### Index

When files are compressed, the last item in the compressed file is an INDEX. It contains the information needed to expand the files to their original size.



### Worked example

Describe how an algorithm and index are used in file compression. (2 marks)

An algorithm is used in compression to make the file smaller. An index file is included when the algorithm is used and is part of the compressed file. When the file is expanded, the index holds the information to recreate the original file.

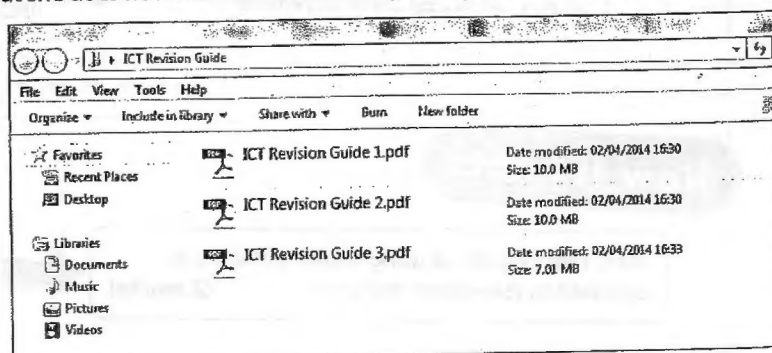
### Now try this

Sharmeen is sending an email. She would like to attach 3 files which total 27 Mb. Her email's limit is 25 Mb but she does not want to send them separately.

- (a) Explain how file compression would help.
- (b) Describe the process of compressing and expanding the files.

(4 marks)

Think carefully about all the information the question is asking for.





Had a look ☐

Nearly there ☐

Nailed it! ☐

**UNIT 1**  
Learning aim A

# Online software and backups

Traditional software is installed onto a computer whereas online software is accessed over the internet through a web browser.

## Advantages of standalone software

- ✓ As it is installed onto the hard drive, it can be used when there is no internet access.
- ✓ It runs faster than online software with a poor internet connection.

User obtains software on DVD or downloads from internet

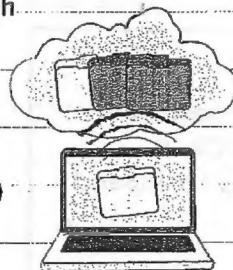


User installs software on computer or file server

## Online software

Online software is accessed through a web browser and is available anywhere that has an internet connection.

- ✓ Updated automatically (on the server, rather than on the client)
- ✓ Backed up automatically
- ✓ Can be used on different devices (computer, tablet, smartphone, etc.)
- ✓ Can be used on different operating systems (Windows, Mac, etc.)



## Online backups

Backing up files online means saving them to external servers.

- ✓ If the user's computer fails, the files are saved on servers elsewhere and would still be safe.
- ✓ Cloud storage is often also backed up so there is double security.

## Worked example

Why is backing up files important?  
Identify **two** reasons from the list below.

(2 marks)

- A ☒ If files become corrupt
- B ☒ If files are accidentally deleted
- C ☐ Makes writing and editing easier
- D ☐ Makes files easier to find
- E ☐ So you can access them anywhere

## Backup and restore

If you are backing up a file it is important to make sure that you can **RESTORE** these files if the original copy is deleted or corrupted. When you are answering questions about backups, make sure you write about making a second copy **AND** restoring it.

Other reasons for backups include viruses.

## Now try this

State **two** benefits of using online software, as opposed to standalone software.

(2 marks)

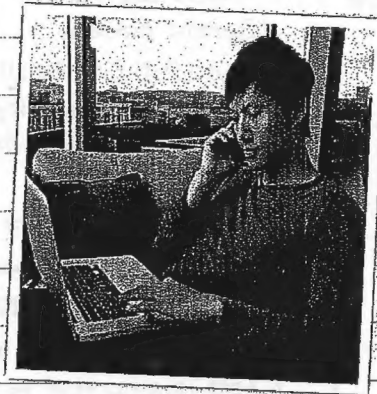
Note how many benefits are asked for, and how many marks are available.

# Collaborative working online

Collaborative working means people working together. Technology allows collaborative working to happen over the internet. Users can work on the same project or even the same document – and they could be in different countries.

## Advantages of collaborative working

- ✓ Users do not need to travel to work together, saving money, time and the environment.
- ✓ Users can work on the same document instead of having different versions of the same file.



## Version control

This is important so that a user knows which is the most up-to-date document. This is especially important for collaborative working. Version control can be managed by:

- locking the file and making it 'read only' while one user is viewing or editing it
- the software allocating version numbers and dates of editing.

## Levels of access

Different users can have different levels of access. This could be set with a username and password. For example, at school or college you will have different access to your teachers on your school network and this is set when you log on.

Login

Username

Password

## File permissions

File permissions give users a level of access to specific files.

Read only	Can look at a document but make no changes
Read/Write	Can look at a document and make changes
Full control	Can do anything to a document, including deleting it

It is important to give users training before granting read/write or full control access.

## Worked example

Which **two** of these are levels of access to files? (2 marks)

- A ☐ Write      B ☒ Read  
C ☒ Read/Write      D ☐ Read/View  
E ☐ View

There is no permission for 'write' because in order to write, the user has to be able to read the file first.

## Now try this

Keith and Shabina are working on a collaborative document.

- (a) Give **one** reason why version control is important. (1 mark)  
(b) Describe **one** way they ensure version control is used. (2 marks)

You only need to give one reason for each part.

# Online communication 1

Communicating online means transferring data from one user to another or many. Often this is done through specialist software or websites, including social media.

## Publishing information

Information can be published online through social media.

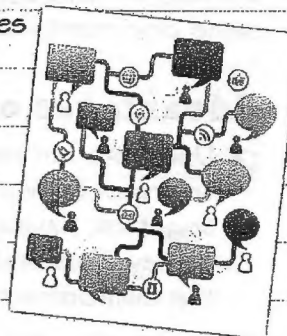
Blog	A web log – an online journal or diary
Microblogging	A website or app where short messages are exchanged (e.g. Twitter)
Wiki	A website where anyone can add and edit information
Podcast	Audio or video files which are usually published in episodes
Chatroom	A place on the web where users can communicate, usually through typed words (users online at the same time)
Chat	An exchange of messages, often typed, between users at the same time (in real time)

## Sharing information and building communities

SOCIAL NETWORKING sites can connect people with similar interests. Those involved can be in different places.

An ONLINE COMMUNITY is a virtual community (group of people) which only exists online.

It is also known as a NETWORK OF FRIENDS.



### Online communities

These often exist in a VIRTUAL WORLD. This is an unreal world which is created by the computer and does not exist in the real world.

Some communities need users to be involved at the same time, such as some online gaming, whereas others can have users interacting at different times, such as a forum or a Virtual Learning Environment (VLE).

## Worked example

Virtual Learning Environments (VLEs) are used in schools, colleges and universities.

(a) Give **two** benefits of using a VLE for learners. (2 marks)

Learners can submit work through a VLE as a saved digital copy and it can be scanned through plagiarism software and then backed up. They can also create wikis that can be shared with their peers and support learning in their classes.

(b) Give **two** benefits of using a VLE for teachers. (2 marks)

Teachers can share resources on a VLE, which means learners and other teachers can access them, such as worksheets, assignment briefs and support materials. They can also access them from school or at home.

Educators can share resources, learners can submit their work and use other tools, such as making quizzes, setting up forums and creating wikis.

## Now try this

Describe **two** ways a business could use social networking to enhance their business and make it more profitable. (4 marks)

Think carefully about what information the question is asking for.



# Online communication 2

Communicating online includes instant messaging. Online communication requires rules and involves users in developing a profile for their online presence.

## Netiquette

NETIQUETTE is the set of rules to which users should conform when online. It is short for net etiquette. This would include not using capitals (as it means shouting), appreciating privacy and not making unkind comments.

## Emoticons



Emoticons, also known as smilies, are images that represent emotions.

## Profile

A PROFILE is the online presence of a user in a particular system, for example on a games system or social media website.

The profile will include a name (which may be a pseudonym) and details about the person. It is up to the user how much they reveal and whether they are truthful or not.



An avatar is a picture which represents a person, usually as part of a profile.

## Instant messaging

Instant messaging is a way to exchange messages instantly between two or more users. Usually online software is used to make connections between the users and provide an environment where they can chat, share files such as images, and use emoticons.

## Client and server roles in instant messaging

The chat program is processed on the user's computer (the CLIENT). Each person chatting holds a local copy on their own computer. Other processing may be carried out on the SERVER, for example when users are logging in.

## Worked example

There are advantages and disadvantages to social networking and instant messaging.

Drag and drop the statements into the correct places in the table.  
(6 marks)

For drag-and-drop questions, always read all the statements carefully first.

Advantages	Disadvantages
Able to communicate in real time	Viruses could spread
Cheap to use	Needs internet access
Able to do video conferencing/sharing/gaming	May lead to misunderstandings

## Now try this

Explain how instant messaging is different from email as a method of communication.

(2 marks)

Had a look ☐Nearly there ☐Nailed it! ☐**UNIT 1**  
Learning aim A

# Voice over Internet Protocol

VoIP (Voice over Internet Protocol) is a method of real-time communication over the internet, for example Skype™. The data transmitted is audio and video as two computers are connected through their unique IP addresses.

## Advantages of VoIP

- ☒ Able to contact someone anywhere in the world where there is an internet connection
- ☒ Uses internet-only so no additional cost (unlike phone calls)
- ☒ Reduces travel costs, travel time, etc.

## Disadvantages of VoIP

- ☒ Relies on internet connection so it can be a slow connection or it can cut out
- ☒ As the audio is being converted to digital, transmitted over the internet and converted back again, the voice quality can be affected
- ☒ Data exchanged over the internet is at risk of security threats such as hackers



A headset like this can be used for VoIP.

## Worked example

A business is working with a supplier based in another country.

Why might they be reluctant to use only VoIP for the weekly meetings? Choose **one** answer from the following options.

(1 mark)

A ☐ It is more expensive

B ☒ The quality isn't always reliable

C ☐ They will need to hire a separate venue

D ☐ They want to be able to use video

## Now try this

VoIP is being used by a business to allow colleagues in different branches to hold weekly meetings.

Explain **two** benefits to the business of using this technology. (4 marks)

Remember to read the question carefully!

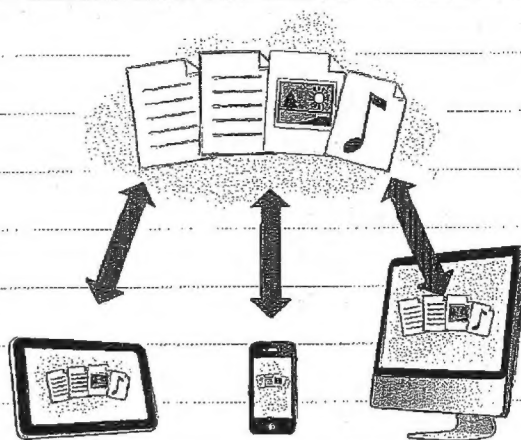
# Cloud computing

## Cloud storage

Cloud computing is where data is saved on external servers instead of the user's hard drive. The external servers are called HOSTS and are owned by a HOSTING COMPANY. Some well-known examples are Dropbox™, Microsoft One D™ and Google® Cloud.

Cloud users can access software, data and storage provided by their hosting company.

Users usually access the cloud through a web browser or mobile app – they do not directly access the servers.



## Benefits of cloud storage:

### ✓ COST



You only pay for the storage that you use. You do not have to provide and maintain the hardware.

### ✓ AVAILABILITY



Data can be available anywhere in the world where there is an internet connection.

## Drawbacks of cloud storage:

### ✗ RELIABILITY



It depends on how reliable the host is to access your data.

### ✗ SOFTWARE



The company may not be using the latest, fastest version.

### ✗ SECURITY



You have no control over the files stored and you have to trust the company to keep them safe.

### ✗ POTENTIAL LOW PERFORMANCE



The speed of accessing data might be slower than using installed software.

## Worked example

- 1 Explain how data is stored in cloud computing. (2 marks)
- 2 Explain how data is stored in installed software. (2 marks)

- 1 In cloud computing, data is saved to external servers (hosts).
- 2 In installed software, data is saved to the computer's hard drive.

Note how many advantages are asked for, and how many marks are available.

## Now try this

Name **two** advantages of cloud computing. (2 marks)